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MENTAL SCIENCE.

Psychic Disturbances in Russia.

THE subjection to law, of phenomena apparently the result of free individual choice, forms one of the most interesting results of the application of scientific methods to the observation of mental facts. Statistics have made us so familiar with this type of facts, that we are apt to overlook their real significance. The number of suicides, to take one instance of many, we know to be quite constant (in the absence of unusual causes) from one year to another, and yet we usually regard this act as the result of a voluntary deliberation. The various classes of crimes are subject to a similar regularity; and one writer has gone so far as to say that a criminal is as much a manufactured product as is calico, only the methods of production are not so well understood in the former as in the latter case. When any marked deviation in the regularity of such phenomena presents itself, we at once look about for some definite cause, and from a consideration of such causes we are enabled to predict, or at least to confidently expect, that with the presence of such unusual causes there will be found unusual deviations in the prevalence of the phenomena that depend upon it. Thus M. De Candolle, from a study of the frequency of eminent *savants* in various countries, tabulates a series of influences that foster the development of science as well as of those that hinder its growth, and is even able to ascribe a relative importance to these influences. A very striking illustration of the intimate relation between two such series of facts is to be found in an article by N. Tsakni (*Contemporary Review*, March, 1888), upon 'Mystical Pessimism in Russia.' The debasing social, political, and educational conditions that exist in that country have been compared to those of the middle ages, as well as to the times preceding the French revolution. The psychic pestilences that devastated mediæval Europe, the host of absurd and fanatic extravagances that took possession of France in the last century, seem to the psychologist to follow as necessarily from the low mentality and unnatural mode of living of the people as does insanity from a disordered brain. It is not surprising, then, to find in Russia a fertile soil for all kinds of superstitious and abnormal growths.

"Pessimism," in the words of the writer whose article we are to follow, "is a characteristic feature of all those epochs of history in which the mass of human suffering is at a maximum, and moral aspirations are entirely out of harmony with social conditions. Involved in an unequal conflict with their surroundings, men come to regard life as a terrible burden, and seek refuge in suicide, or in strange, mystical, and extravagant theories of society." This is the condition of Russia to-day, and as a consequence it is overrun by a series of barbaric occurrences which it is hard to believe are going on in our day. Spiritualism flourishes, and is constantly on the increase: all sorts of religious sects flourish among the well-to-do as well as among the peasantry. Faith in sorcery and the supernatural is everywhere current: a large number of persons earn a living by predicting fortunes and reading the future from the palm of the hand. A simple peasant woman had such a reputation in this regard, that not only the peasants, but even the officials, always consulted her before any serious undertaking. A belief in the evil eye and a host of superstitious cures is wide-spread. Recently a retired officer acquired a reputation for removing hysteria by exorcism; and the leisure classes flocked to this pretender, who repeated cabalistic formulæ as a cure for insanity, paralysis, and inebriety. The small intelligent population is merely an oasis in the vast desert of the population, ignorant, superstitious, and unhappy. Hysterical outbreaks are frequent, and men and women scream like madmen, fall into convulsions, and announce the end of the world. Sects are formed to preach the misery of life, and death as the sole road to salvation.

About twenty years ago a peasant in the province of Perm, after spending much time in the reading of religious books, concluded that the end of the world was at hand, and converted his neighbors to his belief. Voluntary suicide was the only release from the misery that surrounded them. A number of men, women, and children, including the members of his own family, retired to a forest, where the men dug catacombs, while the women made shrouds. This lasted three days. Then all the disciples, dressed in the garments of

death, three times renounced Satan. The leader gave the command, "Take no food and no drink for twelve days, and you shall enter the kingdom of heaven." Then the days of suffering began. A few, more human than the rest, appealed in behalf of the children, whom they saw writhing in agony, and sucking blades of grass or eating sand; but the leader was immovable. At length two of the fanatics could endure it no longer, and fled. This frightened the band, and the leader announced that the hour of death had come. They massacred the children, and decided to continue the fast. At this stage the police had sought them out, but their frenzy was kindled to the highest pitch. With the prospect of capture before them, a horrible carnage ensued. They killed the women with hatchets, and the efforts of the police only succeeded in saving the leader and three of his associates.

Another instance is that of the monk Falaré, who, not many years ago, went along the banks of the Volga, preaching suicide with great success. One night eighty-four persons met in a cavern that had been filled with straw. They began to fast and pray; but one woman fled, and informed the police. As their pursuers appeared, they set fire to the straw, and threw themselves upon it, killing themselves with hatchets. Many were saved, however, and one of the condemned escaped from prison, and continued to propagate the doctrine. More than sixty persons, including whole families, became his disciples. A day was fixed upon which one peasant went to the houses of the others, killing men, women, and children, all calmly submitting to their fate. The leader then had himself killed. Thirty-five persons, in all, thus perished. These *en masse* massacres are becoming more rare, but all kinds of crimes are still perpetrated as the result of a religious fanaticism. In 1870 a woman threw her child into the fire in obedience to a divine command, and showed no signs of remorse when called to trial. A dozen years ago a man crucified himself, actually nailing his feet and one hand to a cross, and then impaling the other on a nail.

Sects with less horrible practices are numerous. One such calls itself the 'Negators,' and its members keep themselves aloof from all men. They recognize no government, no right, no duty, no property, no marriage, no rites of any kind. Each stands for himself, and life is of no value. They oppose compulsory labor, and neither hire themselves as nor keep servants. They lead lawless lives, and spend much of their time in prison. About twenty-five years ago the 'Jumper' (Prigoony) appeared. They found many followers in the Caucasus and the neighboring mountains, where prisoners had been exiled. The chief apostle of the sect called himself God, and among their doctrines was the gaining of insight by prayer and ecstasy. The face would grow pale, the breath be quickened; then the body would sway, the feet begin to beat, followed by jumping and violent contortions, until exhaustion ensued. Some cry and declare the Spirit is upon them. The meeting ends by a fraternal kiss among all the members, men and women. They abstain from many kinds of food, allow no stimulants, and forbid all even the most innocent pleasure. Their time is spent in praying and fasting, but they have no ceremonies of any kind. A group of these calls itself the 'Children of Zion.' They live in solitary houses, and scourge themselves, jumping and shrieking until they are possessed. They fast, often letting their women and children die of hunger. They believe the end of the world to be near, and regard themselves, as do other sects, as the only true Christians. They predict a kingdom of Zion that shall last for a thousand years. Their leader has twelve apostles and a number of queens. When once displeased, he threatened to fly to heaven. Another sect are the 'Communists,' who regard themselves as the elect people of God. They, too, have ecstasies, and predict the end of the world. A man of twenty-five and a girl of eighteen represent Christ and the Virgin among them, and receive homage. They preach an equal ownership in property, and a rich citizen gave up his property to be divided among them. The police has interfered with the organization, but it is still secretly propagated. These are only samples of the many social and religious disturbances that give evidence of the abnormal state of mind under which these unfortunate people live.

ILLUSIONS OF SIGHT AND MOTION. — The senses are subject to illusions in proportion to the remoteness of the information that

they give from the immediate necessities of the organism. Touch, the most immediate and least inferential of the senses, is least subject to illusions; while sight is so very much so, that the blind often say they have an advantage over the seeing in being free from visual illusions. The illusions of bodily motion are much nearer to those of touch than to those of sight, and yet they can under certain conditions be induced through visual impressions. Of this the writer has recently had two interesting examples. He was standing upon the floor of a railroad-depot, the boards of which were laid with a considerable open space between them; and the shadow of an electric light was moving up and down by the swinging of the light in the wind. Looking at the floor, it seemed as though the shadow were stationary, and the floor-boards moving. From this it followed that the person on it was moving too, and the writer distinctly felt the swinging sensation: in fact, his attention was called to the phenomena by this feeling of motion. The other observation was as follows: while riding in the cars and looking out of the window, the trees and all are seen to move in the opposite direction. If, now, one looks in a mirror so situated that it reflects the passing landscape, which, however, must not be visible except in the mirror, one has the illusion of moving in the opposite to the real direction of motion, owing to the reversal of the image in the glass. In both these cases an immediate bodily sensation is induced by a more or less unconscious inference through visual sensations.

HEALTH MATTERS.

Scarlet-Fever.

ONE of the most valuable communications which we have received in answer to the series of questions which were propounded relative to scarlet-fever in *Science* of Dec. 16, 1887, is that from the pen of Dr. Henry B. Baker, secretary of the State Board of Health of Michigan. The arrangements which Dr. Baker has instituted for obtaining information from every town and village of the State are so thorough and complete, that the deductions made from the statistics thus obtained are especially valuable and trustworthy.

Dr. Baker does not believe that scarlet-fever ever arises *de novo*, but, judging from researches by Dr. Klein and others, thinks it is possible that the pre-existing case may have been a cow or some other animal, and not a human being. There is no doubt in his mind that scarlet-fever is a communicable disease; and he gives the following instances which have come under his own personal observation, tending to prove this communicability:—

(a) A child about four years old was taken sick with scarlet-fever a few days after putting on a cloak made in a room in which was a little girl convalescent from scarlet-fever.

(b) A young woman came into the (small) residence in which a child was sick with scarlet-fever, remained less than an hour, rode several miles into the country, where in a few days she was taken sick with scarlet-fever.

(c) Members of the family into which was introduced the young woman mentioned above, in a few days were taken sick with scarlet-fever, and one of them died.

In reference to the communication of bovine scarlet-fever to man, either by contagion or the milk of affected animals, he has no information except that which has already been given relating to the Hendon dairy, of which he says that the evidence of scarlet-fever being communicated from diseased milch-cows is given by Mr. Power and Dr. Klein, who traced outbreaks of scarlet-fever to milk received from diseased cows on the Hendon farm in England. Milk from these cows was distributed by all the distributors of milk from the Hendon farm except one, and this was the only district supplied by milk from this farm which was not affected with scarlet-fever. Dr. Klein obtained from these cows a particular microbe identical with the micrococcus found in persons affected with scarlet-fever. Other cows inoculated with the micrococcus from scarlet-fever patients became affected with a cutaneous and visceral disease similar to that which affected the Hendon cows. We have already (*Science*, Feb. 10, 1888) referred to the fact that these observations of Power and Klein are disputed by Professor Crookshank, who investigated the matter for the English privy council.

Crookshank believes that the disease was cow-pox, and not scarlet-fever, and that, as a natural sequence, the outbreak of scarlet-fever attributed by Klein to the Hendon cows had no connection with them whatever. In Dr. Baker's opinion, a person who has had scarlet-fever is probably liable to communicate the disease to others until after the completion of the process of desquamation (peeling or scaling of the outer skin), which process also occurs to surfaces in the interior of the body, and which, on some external parts, *may* not be completed for two or three months. But without bathing, and change of clothing or its thorough disinfection, a person may communicate scarlet-fever many months after desquamation has ceased. Cases illustrative of this are recorded on p. 257 of the 'Report of the Michigan State Board of Health for 1885,' p. 275 of the report for 1884, and p. 219 of the report for 1886.

Dr. Baker has personally known of instances where articles of clothing, books, etc., have retained infection for a few weeks; but he has known, by means of reliable information, of the infection having been retained for much longer times. For instance, a trustworthy physician informed him that a patient of his, being cold, went to a closet and procured a cape worn by his brother one year before, during convalescence from scarlet-fever. In a few days he was himself taken sick with scarlet-fever. Dr. Baker thinks that boards of health should not require reports of cases of scarlet-fever to be made to them unless the people themselves have by law made provision therefor. Nothing is gained by boards of health, or other servants of the people, attempting to dogmatically force people to do what their intelligence, or lack of it, does not lead them to see is right and just. Boards of health should strive to put the facts before the people, and to execute existing laws.

The *people* should by law require that prompt report be given to the local health-officer, on the occurrence of a case of scarlet-fever. Proper penalty should be affixed to the violation of this law, and the law should be enforced by the prosecuting attorney. The report should be required to be made by every householder, hotel-keeper, keeper of a boarding house, or tenant, who shall know, or shall be informed by a physician, or shall have reason to believe, that any person in his family, hotel, boarding-house, or premises is taken sick with scarlet-fever. The notice should state the name of the person sick, and so designate the house or room in which the person is as to enable the health-officer to enter at once upon his duties of restricting the disease as promptly as the fire department enters upon the restriction of a fire. The penalty should not be enforced against a householder, etc., if the case is at once properly reported by the physician. Every physician should be required to report to the local health-officer every case of scarlet-fever which comes under his observation. A fee should be paid by the people to the physician who makes such a report for the public good.

The reasons why notice of scarlet-fever should be given are similar to those why public notice of a fire should be promptly given by whoever gains the knowledge first. The common safety of life is endangered by keeping such knowledge secret. No one person's or few persons' interests should be permitted to weigh against the interest of humanity at large.

If the law permits, it is the duty of the board of health to act as promptly for the restriction of the disease as the fire department acts for the restriction of a fire, and for similar reasons: life and property are in jeopardy so long as the case is not isolated.

The law should require the health officer¹ (a) immediately to investigate the subject, and, in behalf of the board of health of which he is an executive officer, (b) to order the prompt and thorough isolation of those sick or infected with such disease, so long as there is danger of their communicating the disease to other persons; (c) to see that no person suffers for lack of nurses or other necessities because of isolation for the public good; (d) to give public notice of infected places by placard on the premises, and otherwise if necessary; (e) to promptly notify teachers or superintendents of schools concerning families in which are contagious diseases; (f) to supervise funerals of persons dead from scarlet-fever; (g) to disinfect rooms, clothing, and premises, and all articles likely to be infected, before allowing their use by persons other than those in isolation; (h) to keep the president of his

¹ In cities so large that this work cannot be done by the health-officer, a sufficient number of experts should be employed in this work.